

# HIGH- $T_C$ SUPERCONDUCTIVITY INFORMATION CENTER FY93 END OF YEAR REPORT

## SUMMARY AND GOALS

The *High- $T_C$  Update* newsletter is a state-of-the-art mechanism for effective dissemination of scientific breakthroughs. Flexible enough to expand into related areas as needed (e.g., high- $T_C$  device applications and processing advances, fullerene superconductivity), the newsletter has demonstrated its continued usefulness in providing rapid, reliable access to international superconductivity research. The newsletter began as a short-term solution for a crisis situation: over the years, it has become a successful model for how research results can--and should--be communicated.

Rapid, reliable access to experimental results and theoretical modeling is not an arbitrary luxury: it is a highly cost-effective necessity. Science is based not only on research but on communicating that research--verifying, debating, disproving, explaining results; but manuscripts take a long time to reach print--frequently six months to one year. As N. David Mermin pointed out in *Physics Today* (May 1991), preprints are "the current avenue of serious communication." By the time most papers are published, they are already "old news": colleagues have reviewed the preprints, comments have been incorporated, and new research has begun. *High- $T_C$  Update* expands the already existent practice of informal dissemination of ongoing research results and makes preprints accessible to a wider audience. The newsletter helps avoid unnecessarily repetitive--and occasionally misguided--research efforts, and thus accelerates the rate at which research results are achieved.

The newsletter review section, "Nota Bene," summarizes the most significant high-temperature (and fullerene) superconductivity research results and places it in a historical context. This enables researchers to save a great deal of time in their review of the current literature. The preprint list enables readers to learn what papers are being presented at numerous international conferences or submitted to journals, long before the papers are published. Over half the preprints listed are contributed by foreign subscribers; the newsletter is, for all practical purposes, the only way to rapidly access current international research results.

Publishing a list of preprints and analysis and distributing it as a hard-copy or e-mail newsletter is a cutting-edge response to an ongoing need, a response that enables the communication of research to proceed with as much rapidity as the research itself.

## FY 93 ACCOMPLISHMENTS

Center personnel respond to individual information queries, send news flashes, and publish a twice-monthly newsletter, *High- $T_C$  Update*, which is distributed internationally without charge as hard copy, as electronic mail, and as a computer-based, downloadable file. The newsletter is usually 16 pages long and includes an extensive list of preprints (including author[s], title, submission information, contact information for first author, PACs, and key words), a preprint review section called "Nota Bene," coming events, resources, relevant news items, RFPs, and job announcements.

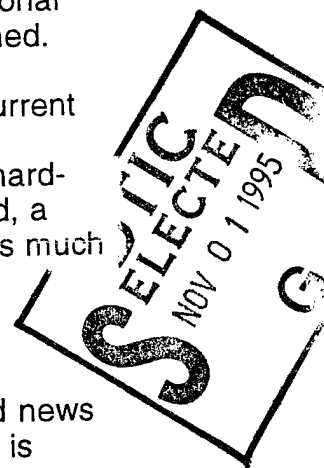
As of October 10, 1993, approximately 2700 people were subscribing to the newsletter and many more receive the newsletter through local routing and

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copying arrangements. The e-mail subscription list includes almost 800 addresses all over the world and is rapidly growing. During FY93, a new more efficient way to send the e-mail version of the newsletter was developed, cutting down the computer time needed to mail newsletters by a factor of over 20. Developments are under way to provide additional choices to e-mail subscribers regarding the format in which they receive their newsletter. Subscribers include researchers at universities, government labs, and private industries; libraries; government agencies; journalists; patent attorneys; corporate R&D managers; high-school science teachers and students.

During FY93, twenty-four issues of *High- $T_c$  Update* have been published and distributed to subscribers all over the world. The newsletter annual renewal process is presently under way in order to (1) ensure that only those who are interested receive the newsletter; (2) save on postage and printing expenses; (3) update and expand the information on the mailing-list database; and (4) generate voluntary contributions in support of the newsletter. Although some subscribers did not renew immediately, during the past fiscal year most eventually renewed and many new subscribers were added to the list.

Support for the newsletter during FY 93 was provided by DMS/BES/DOE (\$110,000), DARPA (\$30,000), ONR (\$20,000), NIST (\$15,000), NASA (\$15,000), and EPRI (\$15,000). The number of small donors increased markedly in FY 93, totaling approximately \$13,000.

#### **FUTURE PLANS: FY 94 STATEMENT OF PROPOSED WORK**

Since the inception of the newsletter project in April 1987, major funding has been provided by DMS/BES/DOE, DARPA, ONR, AFOSR, NSF, NASA, NIST, and EPRI, and by individual and corporate donations and voluntary subscriptions. Additional funding sources will be located, and new ways to ensure that the newsletter is produced in a cost-effective manner will be explored.

During FY 94, every effort will be made to expand the network of researchers contributing to and receiving *High- $T_c$  Update*. By ensuring the most complete coverage possible, we will be able to maximize the effectiveness of the newsletter as a rapid-communication vehicle.

As superconductivity research moves in new directions, including applications and technology transfer initiatives, the newsletter will continue to expand its coverage as necessary. We will also continue to publicize its availability to a somewhat different, but related, set of researchers.

The e-mail version will be offered in a choice of formats to subscribers. The final text after simple encoding and decoding procedures will be a more readable and attractive format.

Readers have requested more coverage of devices, applications, and processing, and a concerted effort will be made to report on these topics as R&D moves successfully from the lab to the marketplace. The editor is presently conducting a survey of subscribers to gauge topics of interest, and efforts are under way to increase industrial input to the newsletter.

The newsletter will continue to be published as hard copy and e-mail twice a month, twenty-four times a year.

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Prepared by Sreeparna Mitra, Principal Investigator, 10/20/93

FY93 End of Fiscal Year Letter  
(01 Oct 1992 - 30 Sep 1993)

ONR CONTRACT INFORMATION

Contract Title: High-T<sub>c</sub> Update Superconductivity Information Center Project  
Performing Organization: Iowa State University/Ames Lab  
Principal Investigator: Dr. Sreeparna Mitra  
Contract Number: N00014-93-1-0581  
R & T Project Number: htsc028--105  
ONR Scientific Officer: Dr. Robert Pohanka

Accession For	
NTIS CRA&I	<input checked="checked" type="checkbox"/>
DTIC TAB	<input type="checkbox"/>
Unannounced	<input type="checkbox"/>
Justification .....	
By .....	
Distribution /	
Availability Codes	
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Enclosure (1)

D. List of Publications/Reports/Presentations

1. Papers Published in Refereed Journals

2. Non-Refereed Publications and Published Technical Reports

24 issues of High-Tc Update newsletter

6

3. Presentations  
a. Invited

b. Contributed

4. Books (and sections thereof)

Enclosure (2)

E. LIST OF HONORS/AWARDS

Name of Person  
Receiving Award

Recipient's  
Institution

Name, Sponsor and  
Purpose of Award

Enclosure (3)

H. SUMMARY OF FY93  
PUBLICATIONS/PATENTS/PRESENTATIONS/HONORS/PARTICIPANTS  
(Number Only)

	<u>ONR</u>	<u>non ONR</u>
a. Number of Papers Submitted to Referred Journal but not yet published:	_____	_____
b. Number of Papers Published in Refereed Journals:	_____	_____
c. Number of Books or Chapters Submitted but not yet Published:	_____	_____
d. Number of Books or Chapters Published:	_____	_____
e. Number of Printed Technical Reports & Non-Referred Papers:	24 NEWSLETTERS -	
f. Number of Patents Filed:	_____	_____
g. Number of Patents Granted:	_____	_____
h. Number of Invited Presentations at Workshops or Prof. Society Meetings:	_____	_____
i. Number of Contributed Presentations at Workshops or Prof. Society Meetings:	_____	_____
j. Honors/Awards/Prizes for Contract/Grant Employees: (selected list attached)	_____	_____
k. Number of Graduate Students and Post-Docs Supported at least 25% this year on contract grant:	_____	_____
Grad Students:		
TOTAL	_____	_____
Female	_____	_____
Minority	_____	_____
Post Doc:		
TOTAL	_____	_____
Female	_____	_____
Minority	_____	_____
l. Number of Female or Minority PIs or CO-PIs	1	_____
New Female	_____	_____
Continuing Female	_____	_____
New Minority	_____	_____
Continuing Minority	_____	_____

Enclosure (4)



OFFICE OF THE UNDER SECRETARY OF DEFENSE (ACQUISITION)  
DEFENSE TECHNICAL INFORMATION CENTER  
CAMERON STATION  
ALEXANDRIA, VIRGINIA 22304-6145

IN REPLY  
REFER TO

DTIC-OCC

SUBJECT: Distribution Statements on Technical Documents

TO: OFFICE OF NAVAL RESEARCH  
CORPORATE PROGRAMS DIVISION  
ONR 353  
800 NORTH QUINCY STREET  
ARLINGTON, VA 22217-5660

- 1995 1031 031
1. Reference: DoD Directive 5230.24, Distribution Statements on Technical Documents, 18 Mar 87.
  2. The Defense Technical Information Center received the enclosed report (referenced below) which is not marked in accordance with the above reference.  
ANNUAL FY93 REPORT  
N00014-93-1-0581  
TITLE: HIGH-TC  
SUPERCONDUCTIVITY  
INFORMATION CENTER
  3. We request the appropriate distribution statement be assigned and the report returned to DTIC within 5 working days.
  4. Approved distribution statements are listed on the reverse of this letter. If you have any questions regarding these statements, call DTIC's Cataloging Branch, (703) 274-6837.

FOR THE ADMINISTRATOR:

1 Encl

GOPALAKRISHNAN NAIR  
Chief, Cataloging Branch

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The cited documents has been reviewed by competent authority and the following distribution statement is  
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<u>A</u> (Statement)	OFFICE OF NAVAL RESEARCH CORPORATE PROGRAMS DIVISION ONR 353 800 NORTH QUINCY STREET ARLINGTON, VA 22217-5660	_____ (Controlling DoD Office Name)
_____ (Reason)	DEBRA T. HUGHES DEPUTY DIRECTOR CORPORATE PROGRAMS OFFICE	_____ (Controlling DoD Office Address, City, State, Zip)
<u>Debra T. Hughes</u> (Signature & Typed Name)	_____ (Assigning Office)	<u>19 SEP 1995</u> (Date Statement Assigned)